```
=> d his

     (FILE 'HOME' ENTERED AT 17:02:11 ON 14 SEP 2005)
     FILE 'CA' ENTERED AT 17:02:18 ON 14 SEP 2005
L1   2003 S (SAMPLE OR SERUM OR SERA)(3A)BLANK
L2    953 S BLANK(3A)(CORRECT? OR CALIBRAT? OR COMPENSAT?)
L3  77954 S (INTERFER? OR IMPURITY OR HEMOLY? OR HAEMOLY? OR PSEUDOHEMOL? OR
          PSEUDOHAEMOL? OR HEMOGLOB? OR HAEMOGLOB? OR CHYLE OR ICTERUS OR
          BILIRUBIN OR COLORA? OR DISCOLOR? OR OVERLAP? OR ERROR)(5A)
          (COMPENSAT? OR REMOV? OR ADJUST? OR CALIBRAT? OR CORRECT? OR
          ELIMINAT? OR EVALUAT?)
L4   8670 S L3(7A)(EFFECT OR RESULT OR INFLUENCE OR OUTCOME OR MEASUREMENT OR
          ANSWER OR CONCENTRATION OR AMOUNT OR VALUE)
L5   1680 S L1-2,L4 AND(BLOOD OR URINE OR SALIVA OR BODY FLUID)
L6    130 S L5 AND(ALGORITHM OR EQUATION OR REGRESS? OR MODEL)
L7      6 S L6 AND BLOOD(1A)SUBSTITUTE
L8    390 S L5 AND(ANALYZER OR ANALYSER OR SPECTROMETER OR OXIMETER OR
          PHOTOMETER OR SPECTROSCOPIC OR SPECTROMETRIC OR COLORIMETER OR
          COLORIMETRIC OR PHOTOMETRIC OR(ANALYSIS OR ANALYTICAL)(2A)(DEVICE OR
          INSTRUMENT OR SYSTEM OR ELEMENT OR MACHINE))
L9    347 S L8 NOT(MASS SPECTRO? OR FLAME OR COULOMET? OR POTENTIO? OR
          SEMICONDUCT? OR ELECTRODE OR MICROELECTRODE)
L10    43 S L8 NOT L9
L11     3 S L10 AND(MANUAL OR TURBID? OR CALIBRAT?/TI)
L12   376 S L6,L9,L11 NOT PY>1997
L13    15 S L6,L9 NOT L12 AND PATENT/DT
L14   394 S L7,L12-13
L15   367 S L14 NOT(NEUTRON OR RADIO? OR ATOMIC ABSOR?)
L16    27 S L14 NOT L15
L17     7 S L16 AND (COLOR? OR PHOTOMET?)
L18   374 S L15,L17

=> d bib,ab l18 1-374

L18  ANSWER 27 OF 374  CA  COPYRIGHT 2005 ACS on STN
AN   126:128897  CA
TI   Effects of major interferences on the quality of biochemical tests on AU
     5231 and AU 5223 (Olympus) and CL 7200 (Shimadzu)
AU   Fremont, S.; Combe, A. M.; Mecrin, M.; Tronel, H.; Galland, A. V.;
     Scholl, C.; Nicolas, J. P.
CS   Laboratoire Biochimie Automatisee, CHU Nancy-Brabois, Vandoeuvre-les-
     Nancy, 54500, Fr.
SO   Annales de Biologie Clinique (1996), 54(8/9), 309-320
LA   French
AB   The impact of the major interferences (hemolysis, bilirubin, turbidity)
     on the quality of biochem. tests was evaluated on the title
     multiparametric analyzers, according to SFBC instructions.
     Interferences were detected in 33 of 165 tests done, i.e., 20% of the
     analyses. Turbidity was the most frequent cause of interference (7.8
     %), followed by hemolysis (8.5%) and bilirubin (3.6%). The use of a
     sample blank, a bireagent, change of reagent, change of secondary
     wavelength, or modification of measurement times allowed us to reduce >
     80% of the interferences. Only 3 interferences remained: from hemolysis
     in the measurement of GOT and potassium and from bilirubin in the
```

measurement of creatinine. For these parameters, a suitable note using the Olympus factors (semiquant. expression of the importance of the 3 interferences) accompanies the results.

L18 ANSWER 32 OF 374 CA COPYRIGHT 2005 ACS on STN
AN 125:296373 CA
TI A simple and rapid method for the determination of D-sorbitol in plasma using the Cobas Mira S
AU Huebner, G. H.; Huebner, G. I.; Weiss, M.
CS Department Pharmacology, Martin Luther University Halle-Wittenberg, Halle/Salle, 06097, Germany
SO Therapeutic Drug Monitoring (1996), 18(5), 620-623
AB The std. enzymic assay for quantification of D-sorbitol (I) in **blood** plasma was adapted to the Cobas Mira S automatic **analyzer**. In the assay, NAD (reagent) in the presence of sorbitol dehydrogenase (SDH; start reagent) converted I to fructose with formation of NADH, which was detected automatically as the difference between the 1st and last readings at 340 nm. The **sample blank** values for each specimen were subtracted to exclude both endogenous I and sugars, which also reacted as substrates for SDH. The method was simple, rapid (40 samples/h), precise down to endogenous concns. (coeff. of variation: <5%; limit of detn.: 0.38 mg/L), and linear up to 100 mg/L. Samples with higher I concns. were estd. after diln. The method was used to measure disposition curves of I in volunteers after a single i.v. dose of 0.8 g I.

L18 ANSWER 47 OF 374 CA COPYRIGHT 2005 ACS on STN
AN 121:296265 CA
TI A **manual** spectrophotometric method for the measurement of serum sodium and potassium by enzyme activation
AU Mazzachi, R. D.; Mazzachi, B. C.; Berry, M. N.
CS Dep. Biochem. Chem. Pathol., Flinders Med. Cent., South Australia, Australia
SO European Journal of Clinical Chemistry and Clinical Biochemistry (1994), 32(9), 709-17
AB **Manual** procedures suitable for use on std. benchtop spectrophotometers have been developed for the enzymic detn. of Na+ and K+ in serum. Both assays require only minimal modification of reagents already available for BM/Hitachi **analyzers** and are performed in an endpoint mode, allowing up to 20 assays per run. The addn. of a stop reagent is required - dipotassium EDTA for the Na+ assay and sodium dodecyl sulfate for the K+ assay. The most important criterion for achieving good assay performance is the precise pipetting of sample and reagent. Within-run imprecision is <1% for Na+ and K+, and between-run imprecision <1.5%, for both assays at all but the lowest concns. of K+. Enzymic electrolyte results compare well with flame photometry, however the assays are more prone to interference by very high concns. of bilirubin or triacylglycerols than those performed on automated, dual-wavelength kinetic **analyzers**. It is possible to correct for most interferences by inclusion of appropriate **sample** and reagent **blanks**.

L18 ANSWER 51 OF 374 CA COPYRIGHT 2005 ACS on STN
AN 121:30301 CA

TI Study on the effects of "visible" interferences - bilirubin, hemolysis, turbidity - on the principle assays used in multiparametric **analyzers**
AU Grafmeyer, D.; Bondon, M.; Manchon, M.; Levillain, P.
CS Lab. de Biochim., Hop. de la Croix-Rousse, Lyon, 69317/04, Fr.
SO Spectra Biologie (1993), 93(4), 33-42
LA French
AB The lab. biologist must ensure the reliability of the results from routine tests performed with multiparametric **analyzers**, whatever the clin. context may be. However, under certain circumstances, elevated **blood** bilirubin levels are noted, parenteral nutrition causes turbidity and sometimes difficult conditions of **blood** collection are responsible for hemolysis. This is why the authors were led to study the impact of such problems using 15 **analyzers** widely used in French labs. Hemolysis is the most frequent cause of interference, followed by bilirubin. All the various parameters are not affected in the same way. Enzymic activities are virtually free from such interferences. In contrast, some routine parameters are highly sensitive: e.g. glucose, creatinine, triglycerides, cholesterol, iron, uric acid, phosphorus and bilirubin. The data emphasize the importance not only of choice of the technique used in the **analyzers**, but also of the conditions of their suitability to the required work. Careful examn. of these conditions allowed, in certain cases, the authors' finding explanations for the difficulties encountered and proposing simple remedies. Greater attention to the definition of the various factors, reaction pattern, **sample blank** or other, choice of the secondary wavelength, etc., will allow better control of interferences.

L18 ANSWER 52 OF 374 CA COPYRIGHT 2005 ACS on STN
AN 120:3746 CA
TI Assay instrument-dependent matrix effects in standardization of cholesterol measurements
AU Waymack, Parvin P.; Miller, W. Greg; Myers, Gary L.
CS Public Health Serv., US Dep. Health Hum. Serv., Atlanta, GA, 30333, USA
SO Clinical Chemistry (Washington, DC, United States) (1993), 39(10), 2058-62
AB Human serum-based frozen ref. materials have been used by the Centers for Disease Control and Prevention (CDC)-National Heart, Lung and **Blood** Institute Lipid Standardization Program to improve the precision and accuracy of **blood** cholesterol measurements. Occasionally, labs. in the program have had problems obtaining results for patients' fresh serum samples equiv. to those obtained with frozen CDC standardization pools. This incompatibility of sample, reagent, instrument, and assay characteristics has been labeled broadly as a matrix effect, which usually is attributed to unknown characteristics of the processed pool material. In this study, the authors showed that a large neg. bias obtained with CDC pools was attributable to use of the **sample blank** mode on the Cobas-Bio **analyzer**. However, under the same conditions, fresh patients' serum samples were analyzed accurately. The use of a blank absorbance immediately after mixing sample and reagents (the "autoblank" mode) allowed the instrument to accurately analyze both fresh serum samples and CDC standardization pools and thus allowed the documentation of traceability of the cholesterol measurements to the National Ref. System for Cholesterol.

L18 ANSWER 66 OF 374 CA COPYRIGHT 2005 ACS on STN
AN 116:55103 CA
TI Single reagent and methods for calcium determination
IN Denney, Jerry W.
PA Synermed Inc., Can.
SO U.S., 10 pp.
PI US 5057435 A 19911015 US 1990-597181 19901012
PRAI US 1990-597181 A 19901012
AB A reagent for Ca detn. in serum and aq. samples, e.g. **urine**, comprises (a) arsenazo III in sufficient amt. to react with all the Ca in the sample; (b) 8-hydroxyquinoline to bind all the interfering Mg in the sample; (c) a buffer that does not bind Ca competitively with arsenazo III, that provides a reagent pH of 8.5-10, and that maintains the pH within 0.1 pH units of the reagent pH when the reagent is added to the sample; (d) dimethylsulfoxide to solubilize the 8-hydroxyquinoline in the reagent; and (e) water. Nonionic surfactants may also be included to minimize lipid turbidity. Assays and **equations** for calcg. Ca concn. are described. Spectral interferences from lipid, bilirubin, etc. are further reduced by performing bichromatic absorbance measurements (absorbance measurements at 2 different wavelengths) and by performing **serum blank** measurements. Hitachi automated **analyzers** were used.

L18 ANSWER 95 OF 374 CA COPYRIGHT 2005 ACS on STN
AN 108:18708 CA
TI A new **colorimetric** method for the measurement of serum calcium using a zinc-zincon indicator
AU Corns, Cathryn M.
CS Med. Sch., Middlesex Hosp., London, W1P 6DB, UK
SO Annals of Clinical Biochemistry (1987), 24(6), 591-7
AB Calcium in the sample displaces zinc from an EGTA complex, the zinc then forming a blue-**colored** complex with a zincon indicator. The method is rapid, sensitive, and linear; it may be applied directly to serum and is readily automated. No compd. tested gave rise to any interference at physiol. concn., although excessive hemolysis leads to low results being obtained. To avoid interference from endogenous zinc, a **serum blank** is required for each sample; this also avoids errors introduced by turbidity of the sample. The results obtained correlate well with at. absorption spectroscopy.

L18 ANSWER 107 OF 374 CA COPYRIGHT 2005 ACS on STN
AN 104:164547 CA
TI Immunoturbidimetric assay of transferrin: effect of iron and need for **serum blanks**
AU Rifai, Nader; King, Mary E.; Malekpour, Akbar; Smith, Jean; Lawson, Jean
CS Dep. Pathol., Med. Coll. Virginia, Richmond, VA, 23298, USA
SO Clinical Biochemistry (1986), 19(1), 31-4
AB A simple immunoturbidimetric assay is described for detg. serum transferrins. The measurement was performed on a COBAS-B10 centrifugal **analyzer**. An aliquot of dild. antihuman transferrin antiserum was preincubated for 2 min at 37°, then automatically mixed with dild. serum. The change in turbidity was measured at 340 nm after 0.5 and 300 s incubation at 37°. Transferrin contents were calcd. by using the

COBAS DENS program. The **effects** of common potential interferents, including Fe, **bilirubin**, lipemia, and Hb, were **evaluated**. This immunotubidimetric assay was compared to a com. radial immunodiffusion (RID) and the conventional total-iron-binding capacity (TIBC) assay for detg. transferrins in serum of healthy humans and patients with anemia. A good correlation was obtained between results obtained by immunoturbidimetry and RID. Immunotubidimetric assay of transferrin gave excellent recovery in sera spiked with pure human transferrin. In contrast, the recovery of the TIBC assay av. ~60%. Apparently, serum transferrin concns. were incorrectly estd. by TIBC assays, probably because of nonspecific iron-binding by other serum proteins. The use of a kinetic procedure or a **serum blank** in the immunoturbidimetric detn. of transferrin is recommended.

L18 ANSWER 108 OF 374 CA COPYRIGHT 2005 ACS on STN
AN 104:65430 CA
TI Method and apparatus for determination of an analyte and method of calibrating such apparatus
IN Lo, Donald Hung Tak; Wu, Tai Wing; Bailey, Mark Wallace
PA Eastman Kodak Co., USA
SO Eur. Pat. Appl., 34 pp.
PI EP 158506 A2 19851016 EP 1985-302339 19850403
US 4627014
PRAI US 1984-597878 A 19840409
AB Analytes, particularly bilirubin, are detd. in aq. fluids by phys. contacting the sample with an interactive compn. for the analyte, measuring the spectrophotometric response generated by such contact at a primary wavelength λ1 and ≥1 secondary wavelengths λ2, λ3, etc., and detg. analyte concn. by using the **equation** C = a0 + a1[A1 + α2 + ... αn - 1An] (C = analyte concn., A1A2...An = absorbances obsd. at λ1, λ2, ... λn, resp., and a0, a1, and α1, α2 ... αn-1 are consts. detd. according to a calibration method). The calibration method is a means for detg. and recording in a chem. **analyzer** the a0, a1 and α1, α2, ... αn-1 consts. essential for making the analyte detn. The procedure and app. are effective for eliminating obsd. interferences in assays where neither the identity nor the concn. of the sample are known. Thus, total bilirubin was detd. in human serum by using a known dry **anal. element** and **evaluating** total **bilirubin** (BT) **concn.**, at λ1 = 540 nm (the conventional adsorption wavelength for bilirubin detns.) and λ2 = 460 mm in order to **correct** the obsd. **effect** of the **interferent** present in the samples. The assay was accomplished with an EKTACHEM 400 clin. **analyzer** which had been calibrated to det. BT according to BT = a0 + a1[A1 + αA2]. Results indicated this method reduces the bias obsd. with known assays and significantly improves the accuracy of total bilirubin detn.

L18 ANSWER 113 OF 374 CA COPYRIGHT 2005 ACS on STN
AN 103:139855 CA
TI A nephelometry system for the Abbott TDx **analyzer**
AU DeGrella, Raymond F.; Combs, Gerald L.; Coffee, Elizabeth E.; Stern, Cassandra H.; Frenkel, Dina; Kureshy, Fareed; Kanewske, William J.; Hiatt, Dale A.; Shanks, Robert E.; Pumphrey, John G.
CS Abbott Lab., Irving, TX, 75015, USA

SO Clinical Chemistry (Washington, DC, United States) (1985), 31(9), 1474-7
AB A self-contained light-scattering accessory carousel was developed for the Abbott TDx fluorescence polarization **analyzer**, extending the instrument's capabilities to nephelometric methods of anal., including assays for specific proteins by immunopptn.: IgG, IgA, IgM, and transferrin. The scattered light from a green-light-emitting diode (peak wavelength 565 nm) is measured at an angle of 37.5° by the existing optical detection system of the TDx **analyzer** without modification of the instrument. Measurements are made at quasi-equil., with **sample blank correction**. No sample pretreatment is required, and antigen-excess is checked automatically. Coeffs. of variation range from 3 to 6% (within-run) and 7 to 9% (total). Calibration curves may be stored for at least 2 wk. A nephelometric method for monitoring chromogenic reactions in the green wavelength region is also described. This method, Scattered Energy Attenuation, was used in preliminary expts. to measure Ca, total protein, Fe, and bilirubin.

L18 ANSWER 126 OF 374 CA COPYRIGHT 2005 ACS on STN
AN 101:86571 CA
TI Enzymic assay for creatinine with fixed-time kinetics on a centrifugal **analyzer**
AU Margrey, Marilyn; Margrey, Keith; Bruns, David E.; Boyd, James C.; Fortier, Gregory A.; Renoe, Brian W.; Savory, John
CS Univ. Virginia Med. Cent., Charlottesville, VA, 22908, USA
SO Annals of Clinical and Laboratory Science (1984), 14(4), 298-303
AB A method is described for enzymic measurement of serum creatinine by a centrifugal **analyzer**. The method employs fixed-time kinetics and a true **serum blank**. The method requires 100 μL serum and is linear to 90 mg/L. Day-to-day precision studies revealed a std. deviation of less than ±0.5 mg/L (7.4% relative std. deviation) at a mean creatinine concn. of 6 mg/L and ±0.5 mg/L (1.8% relative std. deviation) at a mean value of 28 mg/L. The method was free of interferences from acetoacetic acid, ascorbic acid, bilirubin, and Hb. The speed, precision, and accuracy of the method suggest that it represents a useful alternative to methods that use the alk. picrate procedure.

L18 ANSWER 140 OF 374 CA COPYRIGHT 2005 ACS on STN
AN 99:18973 CA
TI Fully automated **blank-corrected** analyses of total and conjugated bilirubin on the Dupont aca
AU Painter, Pennell C.; Evans, John H.
CS Mem. Hosp., Univ. Tennessee, Knoxville, TN, USA
SO Journal of Clinical Laboratory Automation (1981), 1(2), 113-19
AB Complete and detailed modifications to the Dupont anal. chem. **analyzer** (aca) are described. These changes permit reliable fully automated **blank-cor**. detn. of both total and conjugated bilirubin in the presence of Hb. All lacing diagrams and verification light sequences needed to change the regular total and conjugated bilirubin assays to **blank-cor**. total bilirubin (BC-TB) and conjugated bilirubin (BC-CB) methods are shown. Between-day anal. of com. control sera over 50 days showed a relative std. deviation of 2.7% for BC-TB and 3.5% for BC-CB. Split-sample correlation studies of the **blank-cor**. method, which use nonhemolyzed, nonlipemic patient samples vs. the regular Dupont

bilirubin methods and a manual Jendrassik and Grof method, showed good correlations for both BC-TB (r = 0.998), (r = 0.984), and BC-CB (r = 0.997), (r = 0.977). The **blank-cor**. methods, unlike the normal Dupont T-Bil (total bilirubin) and C-Bil (conjugated bilirubin) methods, were relatively insensitive to both false Hb-induced elevations and depressions of measured bilirubin.

L18 ANSWER 142 OF 374 CA COPYRIGHT 2005 ACS on STN
AN 98:211886 CA
TI Effects of metronidazole (Flagyl) on the determination of serum ASAT on the SMA 12/60 Auto **Analyzer**
AU Karlsen, Raznar Lund; Kristiansen, G.; Solberg, J. H.
CS Dep. Clin. Chem., Univ. Hosp. Akershus, Nordbyhagen, 1474, Norway
SO Scandinavian Journal of Clinical and Laboratory Investigation (1983), 43 (2), 175-7
AB Therapeutic serum concn. of metronidazole will lead to under-estn. of aspartate aminotransferase (ASAT) activity in human serum when a SMA 12/60 Auto **Analyzer** is used. This interference is due to metronidazole entering the **colorimeter** through the dialyzer membrane in the SMA 12/60 Auto **Analyzer**. This drug is one of the few with a relatively high therapeutic serum concn., absorbing light in the 340 nm range. Metronidazole will similarly affect other 340 nm methods (lactate dehydrogenase and alanine aminotransferase) available on the SMA 12/60. This interference with metronidazole on the SMA 12/60 can easily be solved by the introduction of a sep. **serum blank** channel for the 340-nm methods.

L18 ANSWER 159 OF 374 CA COPYRIGHT 2005 ACS on STN
AN 97:37189 CA
TI Immunoturbidimetry of albumin and immunoglobulin G in **urine**
AU Teppo, Anna Maija
CS 4th Dep. Med., Univ. Cent. Hosp., Helsinki, SF-00170, Finland
SO Clinical Chemistry (Washington, DC, United States) (1982), 28(6), 1359-61
AB A rapid, sensitive immunoturbidimetric assay for measuring urinary albumin and IgG with an automated **spectrometer** is described. Dild. **urine** samples and polyethylene glycol in phosphate-buffered saline are pipetted into the cuvettes of the **spectrometer**. The initial absorbances of the samples are measured at 340 nm; antiserum to albumin or to IgG is added to each tube, and after 2 min at 37° the absorbance of the mixts. is read at 340 nm. The initial **blank** absorbances of the **samples** are subtracted from the final absorbance automatically. The change in absorbance is linear with concn. at 5-400 mg/L for albumin and 3-1000 mg/L for IgG. The lower limit of the detn. is 5 mg/L for albumin, 3 mg/L for IgG. Close linear correlations were obsd. between the concns. of albumin and IgG detd. by this method and those detd. by radial immunodiffusion.

L18 ANSWER 168 OF 374 CA COPYRIGHT 2005 ACS on STN
AN 96:65117 CA
TI The measurement of creatinine: a comparison between the Beckman Creatinine **Analyzer** II and the Selective **Analyzer** GSA IID
AU Soldin, Steven J.; Wan, Betty S. Y.; Cherian, A. George

CS Dep. Biochem., Hosp. Sick Child., Toronto, ON, Can.
SO Clinical Biochemistry (1981), 14(4), 165-8
AB Creatinine (I) was detd. in **blood** serum and **urine** by 2 Jaffe-based spectrophotometric methods by using the Beckman Creatinine **Analyzer** II and the Greiner Selective **Analyzer** GSA IID, and the results were compared. The GSA IID showed good linearity in the range 3-250 mg/L. Comparably good results were obtained with the Beckman **Analyzer** in the range 10-250 mg/L. However, at low I concns. (3 mg/L), the Beckman gave falsely low values. The recovery of I added to plasma was quant. (100-102%) for the Beckman **Analyzer** and almost quant. (92-95%) for the GSA IID. The correlation between the 2 methods was good, but the bias between the methods was significant. The between-day precision obtained on the Beckman **Analyzer** was better than that found for the GSA IID. The interference of various compds. on the 2 methods was also examd., and the interference produced by pseudo-Jaffe chromogens was less with the GSA IID, since the latter employs a **serum blank**.

L18 ANSWER 190 OF 374 CA COPYRIGHT 2005 ACS on STN
AN 92:176865 CA
TI Influence of turbidity on **photometric** assays: a **blank sample** must always be used
AU Hubsch, G.; Houot, O.; Henny, J.
CS Lab. Cent. Med. Preventive, Vandoeuvre-les-Nancy, F-54500, Fr.
SO Journal of Clinical Chemistry and Clinical Biochemistry (1980), 18(3), 149-55
AB The influence of sample turbidity on **photometric** assays was studied at different wavelengths. Turbidity was created by using a mixt. of hydrazine sulfate and hexamethylene tetramine, and a dye soln. (p-nitrophenol, cobalt nitrate). This work demonstrates the necessity of using a **blank sample**, for example in the glucose assay (glucose oxidase/peroxidase). The influence turbidity on an assay depends upon the instrument. Knowledge of this influence is essential for the evaluation of the viability of an assay in hyperlipemic serum.

L18 ANSWER 211 OF 374 CA COPYRIGHT 2005 ACS on STN
AN 90:99455 CA
TI Simultaneous **blank correction** in a turbidimetric continuous flow system for immunochemical quantitation of plasma proteins
AU Blom, M.; Soerensen, D.
CS Dep. Clin. Chem., Aalborg Hosp. South, Aalborg, Den.
SO Scandinavian Journal of Clinical and Laboratory Investigation (1978), 38 (8), 785-8
AB By shortening the reaction time by polymer enhancement with polyethylene glycol, it was possible to introduce a line for automatic **blank correction** in a turbidimetric continuous-flow system. The turbidity resulting from the reaction was measured by a simply constructed **photometer**, the serum turbidity being subtracted by the ref. photoelec. cell and the resulting net signal amplified by means of the recorder's stepwise electronic amplifier. Serum transferrin values obtained by this method correlated well with values obtained by estg. blank in sep. runs and with values given by electroimmune assays.

L18 ANSWER 221 OF 374 CA COPYRIGHT 2005 ACS on STN

AN 89:19695 CA
TI Enzymic determination of triglycerides with a System Olli 3000 **analyser**
AU Puukka, Raija; Jokela, H.; Puukka, M.
CS Dep. Clin. Chem., Oulu Univ. Cent. Hosp., Oulu, Finland
SO Scandinavian Journal of Clinical and Laboratory Investigation (1978), 38 (2), 189-92
AB A totally enzymic method is described for detg. serum triglycerides adapted for a System Olli 3000 **analyzer**. In this procedure triglycerides are detd. by measuring free glycerol enzymically after hydrolysis of a sample with lipase and esterase. The method utilizes 2 stds. for **calibration**, includes a **blank correction** and requires 20 μL of serum. Forty serum samples can be analyzed in ~20 min. The procedure is linear up to a concn. of 8 mmol/L of triglycerides. The precision and sensitivity of the method are good. A comparison of this method with another enzymic method gave the correlation coeff. 0.988.

L18 ANSWER 227 OF 374 CA COPYRIGHT 2005 ACS on STN
AN 88:2676 CA
TI Bilirubin and hemoglobin interferences in direct **colorimetric** cholesterol reactions using enzyme reagents
AU Perlstein, M. T.; Thibert, R. J.; Zak, B.
CS Dep. Lab. Med., Sinai Hosp., Detroit, MI, USA
SO Microchemical Journal (1977), 22(4), 403-19
AB The interferences of bilirubin and Hb were tested in 2 cholesterol procedures in which enzymes were used as chem. reagents. Both procedures used similar approaches with cholesterol esterase to free cholesterol from its esters and cholesterol oxidase to generate H2O2 from the total free cholesterol resulting. From that common start, 1 procedure then used catalase to generate H2CO from MeOH and the H2O2 produced from cholesterol, and the H2CO was then reacted with acetylacetone to produce a yellow chromogen, while the other procedure used peroxidase to catalyze a reaction directly between H2O2 and 4-aminoantipyrine plus phenol to generate a pink chromogen. Bilirubin and Hb produced some interference by reacting competitively with H2O2 in both systems and by contributing residual absorbance at the wavelengths of measurement of each of the chromogens. Since bilirubin showed a spectral change, static blanking with **sample blanks** caused overcorrections.

L18 ANSWER 229 OF 374 CA COPYRIGHT 2005 ACS on STN
AN 87:163795 CA
TI Estimation of proteins by immunoprecipitation on the Centrifichem centrifugal **analyzer**
AU Boigne, J. M.; Boigne, N.; Galacteros, F.; Nalpas, B.; Philippon, C.; Vivien, C.
CS Dep. Biochim., Hop. Henri Mondor, Creteil, Fr.
SO Annales de Biologie Clinique (1977), 35(3), 237-54
LA French
AB A modification of an immunonephelometric method is described for the automated detn. of the serum proteins albumin, α-antitrypsin, orosomucoid, α1-macroglobulin, haptoglobin, complement C3, transferrin, IgM, IgG, and IgA by immunoopacimetry on a Centrifichem. centrifugal **analyzer**. The advantages of the method include: the use of 2 concns. of

poly(ethylene glycol) to permit readings within 3 min; avoidance of a prior detn. of **blanks** and **serums** by use of an initial reading at 3 s; and the use of 2 serum dilns. to permit calcn. of all concns. The method compares well with a radial immunodiffusion procedure. For all proteins, 95% of the relative std. deviations are <5%.

L18 ANSWER 230 OF 374 CA COPYRIGHT 2005 ACS on STN
AN 87:153842 CA
TI **Calibration** in an automatic chemical testing apparatus
IN Sommervold, David E.
PA Hycel, Inc., USA
SO U.S., 15 pp.
PI US 4043756 A 19770823 US 1976-758055 19761229
PRAI US 1976-758055 A 19761229
AB In an automatic, chem.-testing app., e.g., for **blood** serum, calibration values obtained from readout signals of anal. means must be stored for use in prior-art calcg. means for processing of subsequent readout signals of samples contg. unknown quantities of substances in a medium. Improved means are provided for selecting the **calibration** values, namely a **blank** value and a ref. value. A plurality of pairs of **blank** and ref. **samples** are processed. The **blank samples** have known zero or baseline levels or concns. of substances and the ref. samples have known concn. levels of each substance. These known values are stored for comparison to processed values obtained by processing the readout signals obtained in response to anal. of the **blank** and ref. **samples**. The validity of each such readout signal as a calibration value is detd. by the successfulness of the comparison. The most current successful blank and reference signals are selected as the calibration values. For verifying validity, the selected calibration values are utilized for processing signals obtained from a calibration control sample for which known substance concn. values are stored. A **blank**, ref., and **calibration** control sample are processed as above at a later time for updating the calibration values during continued operation of the app. The system consists of a sample source, a reaction system, a controller for selecting the test to be performed and feed the reagents, a cathode-ray-tube display, a data-entry keyboard, a printer, a machine sequence controller, a photoelec. **anal. system**, a flame **photometer**, a multiplexer, an analog-to-digital converter, a channel selector counter, and a computing system consisting of an input/output circuit, a processor and control logic circuit, and memory and register banks.

L18 ANSWER 242 OF 374 CA COPYRIGHT 2005 ACS on STN
AN 85:59114 CA
TI Measurement of total protein and albumin in serum with a centrifugal **analyzer**
AU Savory, John; Heintges, M. Geraldine; Sonowane, Meena; Cross, Robert E.
CS Dep. Med., Univ. North Carolina, Chapel Hill, NC, USA
SO Clinical Chemistry (Washington, DC, United States) (1976), 22(7), 1102-4
AB Procedures were evaluated for use of a centrifugal **analyzer** for the detn. of total serum protein by the biuret reagent and of albumin by the bromcresol green reagent. Both reagents were bought com. The total protein detn. was performed in the transfer disc, and the **analyzer** was used only to make final readings, thereby saving time. The assay

required 20 µl sample or std. The albumin detn. required only 5 µl samples, and because of the reaction speed, conventional mixing and reading in the **analyzer** could be used. A computer program calcd. sample concns. from absorbances of sample and stds. cor. for reagent absorbance. In addn., cuvet calibrations were done. **Blank corrections** for lipemic, icteric, and hemolyzed samples were needed for total protein detns. The assays were linear to ≤120 g/l. total protein and to ≤70 g/l. albumin.

L18 ANSWER 253 OF 374 CA COPYRIGHT 2005 ACS on STN
AN 83:160287 CA
TI Enzymic endpoint analysis of glucose with the hexokinase method and the Union Carbide fast centrifugal **analyzer**
AU Fritsche, Herbert A.; Dee, Joshua W.; Adams-Park, Helen R.
CS Dep. Clin. Chem., M. D. Anderson Hosp., Houston, TX, USA
SO Clinical Biochemistry (1975), 8(4), 240-6
AB The combined reagent and **serum blanks** were detd. by measuring the absorbance at 340 nm of the test soln. 2 sec after the reactants were mixed; no appreciable conversion of glucose occurred by this time. The final absorbance was read at the end of 6 min. The method required 5 µl serum.

L18 ANSWER 255 OF 374 CA COPYRIGHT 2005 ACS on STN
AN 83:110730 CA
TI **Colorimetric** enzymic determination of serum total carbon dioxide, as applied to the Vickers Multichannel 300 discrete **analyzer**
AU Norris, Kenneth A.; Atkinson, Alan R.; Smith, William G.
CS Vickers Ltd. Med. Eng., Basingstoke/Hampshire, UK
SO Clinical Chemistry (Washington, DC, United States) (1975), 21(8), 1093-101
AB Phosphenolpyruvate carboxylase (EC 4.1.1.31) was used in developing a simple, inexpensive **colorimetric** assay for serum total CO2 in an open system. The oxaloacetate formed by the action of the enzyme on HCO3- and phosphoenolpyruvate was measured by use of the diazonium salt of Fast Violet B. Interferences from bilirubin, pyruvate, and drugs were negligible. Acetoacetate interference was significant only in highly ketotic **samples**, and a **serum blank cor**. for it. Serum protein interference was equiv. to 3.3 ± 1.25 mmole CO2/l. and hence was sufficiently const. to be cor. for by use of a **serum** std. or **serum blank**. The method was applied to the Vickers M-300 and D-300 systems and within-batch std. deviations of ±0.1 to +0.6 mmole/l. were obsd. Excellent correlation with std. methods was obtained.

L18 ANSWER 257 OF 374 CA COPYRIGHT 2005 ACS on STN
AN 83:93296 CA
TI Blanking and the determination of cholesterol
AU Manasterski, A.; Bartzack, C.; Thibert, R. J.; Zak, B.
CS Sch. Med., Wayne State Univ., Detroit, MI, USA
SO Mikrochimica Acta (1975), 2(1), 1-16
AB A **spectrometric** study was described of 2 similar procedures for the direct detn. of serum cholesterol both of which had been automated. In 1 procedure a **serum blank** was prepd. to **correct** for interferences

whereas in the other procedure both a correction formula for the bilirubin present as well as an empirical compensation in the control serum for lowering all serum values by a fixed amt. were needed. The latter value was calcd. by using the concn. detd. from an extn. process rather than by direct reaction and comparison to stds. The present report indicated that the results obtained from the use of a **serum blank** in the one procedure were measured incorrectly owing in part to spectral shifts and that the measurement would be more correct if an isosbestic wavelength were used. The findings for the 2nd procedure in which indirect serum blanking was used indicated that a correction for at least bilirubin was mandatory.

L18 ANSWER 260 OF 374 CA COPYRIGHT 2005 ACS on STN
AN 82:166987 CA
TI Accurate spectrophotometric method for serum iron and iron-binding capacity without deproteinization or centrifugation
AU Horak, Eva; Sunderman, F. William, Jr.
CS Sch. Med., Univ. Connecticut, Farmington, CT, USA
SO Annals of Clinical and Laboratory Science (1974), 4(2), 87-94
AB A simple, direct, semimicro method was developed for serum Fe and latent Fe-binding capacity. For total serum Fe, ferrozine **color** reagent was used. The concn. of serum Fe was calcd. by ref. to a std. Fe soln. (100 μg Fe/dl) with correction for the absorbance of **serum** and reagent **blanks**. For serum latent Fe-binding capacity, a ferrozine method was detailed. In this procedure, the amt. of added Fe minus the amt. of unbound Fe in the sample was equal to the latent Fe-binding capacity. Measurements of serum Fe and latent Fe-binding capacity by this procedure were comparable in accuracy and superior in precision to measurements by atomic absorption spectrometry.

L18 ANSWER 275 OF 374 CA COPYRIGHT 2005 ACS on STN
AN 80:92843 CA
TI Determination of glucose with a research **model** Aminco Rotochem by the hexokinase reaction
AU Hasson, William; Penton, James R.; Widdowson, Graham M.
CS Inst. Health Res., San Francisco, CA, USA
SO Clinical Chemistry (Washington, DC, United States) (1974), 20(1), 15-18
AB A sep. **sample blank** was eliminated by using the computational capabilities of a small computer interfaced with the Rotochem. In this modification of the method of T. O. Tiffany et al, (1972), a cubic curve was fitted to the initial portion of the reaction path. **Sample blanks** were calcd. by extrapolation back to zero time. The procedure was precise, and results correlated well with those for an accepted automated procedure in which the same reaction was used.

L18 ANSWER 278 OF 374 CA COPYRIGHT 2005 ACS on STN
AN 80:45346 CA
TI Improved method for the determination of total serum proteins on the fast **analyzer**
AU Hanson, Naomi Quast; Freier, Esther F.
CS Dep. Lab. Med., Univ. Minnesota, Minneapolis, MN, USA
SO American Journal of Medical Technology (1973), 39(8), 299-305
AB The detn. of serum proteins by the biuret reaction on the centrifugal

fast **analyzer** is precise, fast, and easy to perform routinely in the lab. Loading the distribution disk automatically with a Micromedic pipet or the Rotoloader III is faster and the precision is better than when the disks are loaded manually with Eppendorf pipets. With a formulation consisting of Na K tartrate and CuSO4 (3:1) in alk. soln., 2.88 g CuSO4/l. in the final reaction mixt. is optimum for the biuret reaction in the centrifugal fast **analyzer**. The method as described is linear to 10 g protein/dl. The computer is programmed for an end point reaction that calcs. ratiometric units, thus, the protein concn. of each specimen is printed. If a **blank correction** is necessary on a specimen the blank, in g/dl, is calcd. manually and subtracted from the total protein concn. **Blank corrections** are necessary for grossly hemolyzed, grossly jaundiced and any lipemic specimens. For 100 samples, the av. protein value detd. by the Autoanalyzer was 6.56 g/dl, whereas that on the centrifugal fast **analyzer** was 6.59 g/dl. The normal serum protein range, representing 2.5 percentile lower and 97.5 percentile upper limits, was 6.3-8.0 g/dl.

L18 ANSWER 287 OF 374 CA COPYRIGHT 2005 ACS on STN
AN 77:72344 CA
TI Apparatus for chemical analysis, especially of **blood**
IN Rosse, Thomas Arthur; Blackmer, David Eastman; Zindler, Jerrold; Kelley, Thomas Francis
PA Instrumentation Laboratory, Inc.
SO Ger. Offen., 36 pp.
PI DE 2128793 19720330
US 3703336 19720000 US
PRAI US 1970-45758 19700612
AB App. is described to analyze **blood**, including enzymes. The automatic **colorimeter** reads 3 **samples**; **blank**, normal, and test. After automatic addn. of the appropriate reagent and an incubation period of the proper time period, the results are displayed as absorbances of the 3 samples Ab, Ax, and As, 2 differences Ax-Ab and As-Ab, and the ratio of the 2 differences. This last no. is directly proportional to the constituent concn. and is displayed along with the appropriate units. Enzyme analyses are made from the rate of change of absorbance with time. After sample and reagent are introduced, the incubation time and temp. and the proper absorbance filter are automatically controlled with a data card. No standardization is necessary, and the app. may be run by unskilled personnel.

L18 ANSWER 319 OF 374 CA COPYRIGHT 2005 ACS on STN
AN 60:92416 CA
OREF 60:16198c-d
TI Spectrophotometric determination of indocyanine green in plasma, especially with a view to an improved **correction** for **blank** density
AU Nielsen, N. C.
CS Med. Dept. B Rigshosp., Copenhagen
SO Scandinavian Journal of Clinical and Laboratory Investigation (1963), 15 (6), 613-21
AB An **equation** for **correction** for **blank** density caused by turbidity in spectrophotometric detn. of the title dye (I) in human heparin plasma was developed. On the basis of detn. of the blank density at 800 and

900 mμ in ~80 samples of undyed, undild. heparinized human plasma, an almost perfect rectilinear relation was demonstrated between the neg. log of these absorbancies. The **equation**, -log E800 = 0.9101 (-log E900) -0.003 was calcd. by linear **regression** analysis. A standard conversion curve and factor were found by detns. of absorbance at 800 mμ in solns. with known concns. of I.

=> log y
STN INTERNATIONAL LOGOFF AT 18:04:39 ON 14 SEP 2005